From a.b.bonds at Vanderbilt.Edu Thu Nov 2 10:58:35 2017
From: a.b.bonds at Vanderbilt.Edu (Bonds, A B)
Date: Thu, 2 Nov 2017 14:58:35 +0000
Subject: [BoatAnchors] Mystery tube pair
Message-ID: <C8FFB7BC5D48064D8BF9AD0086503DF984553773@ITS-HCWNEM107.ds.vanderbilt.edu>

Whilst cruising through my stash of vacuum state devices, I found a box labeled "Raytheon 10044205". In the box were two (unused) tubes with that number, plus handwritten on the top "1193A" and "1193B" in yellow ink. A little searching shows that these are a matched pair of 6AK5/5654. The box was in the section I use for military parts, mainly R390 or R390A stuff.

I cannot remember the significance of this set, if any. Guesses?

A. B. Bonds

From arc5 at ix.netcom.com Thu Nov 2 12:01:36 2017
From: arc5 at ix.netcom.com (David Stinson)
Date: Thu, 2 Nov 2017 11:01:36 -0500
Subject: [BoatAnchors] OT: (Computer) Smart People: Audio Streaming
Message-ID: <000801d353f3$e04a2430$a0de6c90$@netcom.com>

Dear Computer-Smart-People:

I need to stream 22Khz mono audio with minimum
latence.
Needs to stream 24/7 without someone on a keyboard
making the wheels turn. Any suggestions?
(It really is radio related).

From arc5 at ix.netcom.com Thu Nov 2 17:51:13 2017
From: arc5 at ix.netcom.com (David Stinson)
Date: Thu, 2 Nov 2017 16:51:13 -0500
Subject: [BoatAnchors] [Boatanchors] OT: (Computer) Smart People: Audio
 Streaming
In-Reply-To: <9A3F60AF-BB7A-4CE1-B047-48B72EC9A348@gmail.com>
References: <000801d353f3$e04a2430$a0de6c90$@netcom.com>
 <9A3F60AF-BB7A-4CE1-B047-48B72EC9A348@gmail.com>
Message-ID: <002701d35424$b5c50460$214f0d20$@netcom.com>

Re: Streaming 22K Audio real-Time

Thanks to those who've replied. Here's the idea:

Before I get started- this is not suitable for

high precision, small signal modes like WSPR etc.
There are tons of people doing that already and
Lord bless them; they don't need any help from me.
I'm interested in plain-old CW and 'Phone.
Don't need 1 Hz freq stability for that.

The idea is a "remote front end"
(not not *NOT* a remote-tuned receiver you work
with your computer like SDR etc.) so that a small
band of frequencies can be streamed in
near-real-time from a quiet, remote location
to your desktop. I know you can do that with an
SDR.
The front-end itself is not my issue.
I want to stream a small band of frequencies
with little or no lag and use them to modulate
a "baseband" to be used by my BA receivers.

How many of you are familiar with the old analog
microwave concept of a "baseband?"

I want to mix a 470KC Local Oscillator in
a broad-band mixer- flat from 0-11 KC,
with received signals on the 630 meter band
at a quiet location and feed its output into
a computer sound card input.
With the sound card "recording" at a 22KC rate,
the bandwidth of the streamed audio will be
0-11KC,
corresponding to 470-481KC.

For instance:
If we have signals on, say, 472.5, 473, and 477KC,
the (low-passed) mixing products will be
2.5, 3 and 7 KC (discounting the noise floor
products).
These low freqs are digitized by the sound card,
streamed to the user and either demodulated at
the computer or- if feed to an identical 470 KC LO
mixer, feed directly into your receiver's antenna
jack so you are, effectively, using your receiver
with an antenna lead-in all the way to the remote
front-end's location. The stream replaces the
antenna and feedline.

I did this several years ago on 40 and 80 meters
and it worked well except for lag,
which piled-up until there was minutes of delay.

Not good if someone is trying a QSO.

I wanted to listen to a few KC of 40 meters while
working in a microwave/Data station, but the RF
noise
floor was like 30-over-9.
I used a remote mixer at my home, piped the output
to a common consumer audio streaming service to
stream that baseband, then feed that into an
identical mixer at the microwave station. Could
listen to the 40-meter net with my Drake receiver
just fine save for the lag.

That was 8 or 10 years ago and I'm hoping better
streaming solutions have come along since then.
I could reduce the A/D rate down to 8 KC
and still capture from, say, 471 to 475 KC (471
because the LO is at 470 and the first KC is
eaten by the LO noise).

The point is to listen with my BA gear- not a
laptop.
Was able to "transmit" to the remote end as
well. You could have a perfectly legal and "real"
spark QSO using a couple of these if the lag can
be beaten. The stream replaces the antenna and
the
"ether," but the signals are real.

So that's the idea. Surely SOMEONE has come-up
with a "transparent" end-to-end audio channel
with room for an 8, 11 or 22 stream
without all the lag?

TNX ES 73 DE Dave AB5S

From arc5 at ix.netcom.com Sat Nov 4 07:32:05 2017
From: arc5 at ix.netcom.com (David Stinson)
Date: Sat, 4 Nov 2017 06:32:05 -0500
Subject: [BoatAnchors] WTB: Collins 30L1 Case
Message-ID: <000001d35560$8c586120$a5092360$@netcom.com>

WTB: Collins 30L1 case. Doesn't have to be
perfect,

but not bent-up or covered in chicken poop,
please.
Thanks.

73 OM DE Dave AB5S

From wb3fau55 at neo.rr.com Wed Nov 1 10:05:20 2017
From: wb3fau55 at neo.rr.com (wb3fau55 at neo.rr.com)
Date: Wed, 1 Nov 2017 10:05:20 -0400
Subject: [BoatAnchors] UPS charges
Message-ID: <20171101140520.YN9ER.41245.root@cdptpa-web14>

Well guys, no loos here, as I do not use UPS or USPS, as they destroy most stuff, especially at holiday time. I only use FEDEX, expensive often, but good service. Russ.

From wb3fau55 at neo.rr.com Fri Nov 3 11:15:56 2017
From: wb3fau55 at neo.rr.com (wb3fau55 at neo.rr.com)
Date: Fri, 3 Nov 2017 11:15:56 -0400
Subject: [BoatAnchors] 5654s
Message-ID: <20171103151556.967V3.64709.root@cdptpa-web14>

Bonds, as you likely know, Raytheon is/was a big time mil contractor. I am not familiar with the numbers, but they often had a lot of different projects going. Also, they produced tons of spare parts. As packaged, they are not meant as spares for a 390A. Good that you found the numbers as they will find a useful home. It always amazing to me that they put different numbers on them, they did a lot of that. Russ.

From navy.radio at gmail.com Sun Nov 5 11:33:36 2017
From: navy.radio at gmail.com (Nick England)
Date: Sun, 5 Nov 2017 11:33:36 -0500
Subject: [BoatAnchors] Lawrenceville GA hamfest photos
Message-ID: <CAB55hNePBWNh9TpL50B2Eh_zHP3nQPy4zBvQjqaE5Lj=bc=AOg@mail.gmail.com>

Lawrenceville GA hamfest photos
http://www.virhistory.com/ham/ga17.htm

Things seemed to get started more slowly than in previous years but by 0930 I'd guess there were 90% of the tailgaters as last year. A notable selection of Collins St James Gray gear, plus all the usual Heathkit, Drake, etc. gear on offer. An interesting deal I saw was a nice Johnson Ranger, missing the plate tank coil and cabinet, but otherwise complete -

asking $75. There were several estate sales with a good assortment of parts
and projects. Check out the link on my page to the TTY exhibits too.
73 & Have Fun,
Nick England K4NYW
www.navy-radio.com

From ddillman at igc.org Mon Nov 6 20:38:51 2017
From: ddillman at igc.org (Richard Dillman)
Date: Mon, 6 Nov 2017 17:38:51 -0800 (GMT-08:00)
Subject: [BoatAnchors] Any National SW-3 Experts?
Message-ID: <1826395467.13732.1510018731232@wamui-kitty.atl.sa.earthlink.net>

I wonder if there are any National SW-3 experts on the list or if anyone knows of
an email list or group specializing in this receiver. All leads appreciated.

Thanks,

RD

==================================
Richard Dillman
Maritime Radio Historical Society
http://www.radiomarine.org
==================================

From ark at ar88.net Tue Nov 7 08:41:00 2017
From: ark at ar88.net (Al Klase)
Date: Tue, 7 Nov 2017 08:41:00 -0500
Subject: [BoatAnchors] Any National SW-3 Experts?
In-Reply-To: <1826395467.13732.1510018731232@wamui-kitty.atl.sa.earthlink.net>
References: <1826395467.13732.1510018731232@wamui-kitty.atl.sa.earthlink.net>
Message-ID: <25e1e372-6884-bcf6-2cb9-6c76215a3451@ar88.net>

Hi Dick,

I'm not sure expert is the right word, but I own, and restored, a couple
of them.? Go ahead with questions.

Al

On 11/6/2017 8:38 PM, Richard Dillman via BoatAnchors wrote:
> I wonder if there are any National SW-3 experts on the list or if anyone knows
of an email list or group specializing in this receiver. All leads appreciated.
>
> Thanks,

```
>
> RD
>
> =================================
> Richard Dillman
> Maritime Radio Historical Society
> http://www.radiomarine.org
> =================================
>

--
Al Klase ? N3FRQ
Jersey City, NJ
http://www.skywaves.ar88.net/



From knjhanlon at msn.com  Tue Nov  7 15:01:41 2017
From: knjhanlon at msn.com (JAMES HANLON)
Date: Tue, 7 Nov 2017 20:01:41 +0000
Subject: [BoatAnchors] Any National SW-3 Experts?
In-Reply-To: <1826395467.13732.1510018731232@wamui-kitty.atl.sa.earthlink.net>
References: <1826395467.13732.1510018731232@wamui-kitty.atl.sa.earthlink.net>
Message-ID:
<MWHPR2001MB0925565FC8A2CF00EB064C7AA0510@MWHPR2001MB0925.namprd20.prod.outlook.co
m>

RD,


I'm not claiming to be an "expert," but I do operate a functional SW-3 and I've
wound 30 meter bandspreaqd coils for it.


Jim, W8KGI



________________________________
From: Richard Dillman <ddillman at igc.org>
Sent: Monday, November 6, 2017 6:38 PM
To: Boatanchors
Subject: [BoatAnchors] Any National SW-3 Experts?


I wonder if there are any National SW-3 experts on the list or if anyone knows of
an email list or group specializing in this receiver.  All leads appreciated.

Thanks,
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RD

==================================
Richard Dillman
Maritime Radio Historical Society
http://www.radiomarine.org

Maritime Radio Historical Society<http://www.radiomarine.org/>
www.radiomarine.org
The KPH Project. In cooperation with the Point Reyes National Seashore, part of the National Park Service, the Maritime Radio Historical Society (MRHS) has taken on ...

==================================

From 1oldlens1 at ix.netcom.com Mon Nov 6 21:37:51 2017
From: 1oldlens1 at ix.netcom.com (Richard Knoppow)
Date: Mon, 6 Nov 2017 18:37:51 -0800
Subject: [BoatAnchors] Any National SW-3 Experts?
In-Reply-To: <1826395467.13732.1510018731232@wamui-kitty.atl.sa.earthlink.net>
References: <1826395467.13732.1510018731232@wamui-kitty.atl.sa.earthlink.net>
Message-ID: <dd13c5b4-5dbe-b467-6dae-618595bc6015@ix.netcom.com>

I don't know of an SW-3 list but there are at least two National Radio lists.
http://mailman.qth.net/mailman/listinfo/national
and
http://groups.yahoo.com/group/nationalradio/join
If there is a specialized list someone there may know.

On 11/6/2017 5:38 PM, Richard Dillman via BoatAnchors wrote:
>
> I wonder if there are any National SW-3 experts on the list or if anyone knows of an email list or group specializing in this receiver. All leads appreciated.
>
> Thanks,
>
> RD
>
> ==================================
> Richard Dillman
> Maritime Radio Historical Society
> http://www.radiomarine.org

> =================================
> ____
> BoatAnchors mailing list
> BoatAnchors at theporch.com
> https://imac.theporch.com/mailman/listinfo/boatanchors
>

--
Richard Knoppow
1oldlens1 at ix.netcom.com
WB6KBL

From smithab11 at comcast.net Fri Nov 10 20:01:37 2017
From: smithab11 at comcast.net (B. Smith)
Date: Fri, 10 Nov 2017 20:01:37 -0500
Subject: [BoatAnchors] Wanted: A Scan of the RCA AVR-20 Aircraft Receiver
 Brochure
Message-ID: <56dd7fd1-b373-a5e9-e685-aa0908fb2725@comcast.net>

Wanted: A scan of the RCA AVR-20 Aircraft Receiver brochure. These brochures were usually published as a 4 page document. A photo of the AVR-20 front cover can be found? and a pdf file of the AVR-15 brochure can? be found at:

http://k4che.com/RCAAVR20/AVR20p1.htm

73 k4che

From kd5byb at kd5byb.net Sat Nov 11 14:44:40 2017
From: kd5byb at kd5byb.net (Ben Hall)
Date: Sat, 11 Nov 2017 13:44:40 -0600
Subject: [BoatAnchors] Arcing / sparking RAL power supply, part five
In-Reply-To: <c0178998-0dfa-053d-b24e-f96232bba323@kd5byb.net>
References: <eac85d10-9175-4f0c-75d0-2a57fd898209@kd5byb.net>
 <e390bd4e-5479-c741-a172-3a5933770a3d@kd5byb.net>
 <83c53a63-c0a1-30c9-0840-de8f57caea1e@kd5byb.net>
 <ed1b674a-091a-41c4-8761-2a39556406b5@ws19ops.com>
 <CAEv8c7FHMbWCPiV5iQ2prCXFqpsssNtxCYjVdw4y3SesszOK1w@mail.gmail.com>
 <0746c2ac-d1b8-43c8-b1a3-884cd2194c65@ws19ops.com>
 <02A78F83-D7A4-4CFF-B90F-B0CA96D9DE36@gmail.com>
 <c0178998-0dfa-053d-b24e-f96232bba323@kd5byb.net>
Message-ID: <cc0e07ae-c151-3caf-750b-b938d656fedb@kd5byb.net>

Good afternoon all,

Back to working on the RAL power supply. As I left you last time, I determined that the line filter was sparking and I had gutted the old line filter case. I was contemplating my options.

So here's what I did - I designed and built a completely new line filter replacing all of the line filter components with new per the values in the RAL manual. Due to the magic of modern components, all of the coils fit on one PCB board that is now mounted in the old line filter can. The board uses class X "across the line" and class Y "line to ground" safety capacitors so it is a nice safety upgrade as well.

Yesterday I reinstalled the AC line filter can and I rewired the power switch with new wire as the old wire was not in great shape. I also had to replace some missing hardware on the rectifier socket which was missing when I got the unit.

Today was spent adding fiberglass sleeving to the wires in the back of the unit that are in close proximity to the ballast tube and large power resistor. These wires had some areas of damage - not enough to merit tearing them out completely, but enough that I couldn't leave them as-is.

I also made an "insulating disk" to go under the ballast tube so I can install the ballast tube in the holder, but not have it made contact. This was I can keep the ballast tube installed where I won't misplace it and operate the unit with the ballast tube out of circuit. The manual notes that when running without the ballast tube, it should be removed. I suspect that the whole ballast tube arrangement was due to the fluctuation of power on-board ship, which won't be an issue here at my shack.

The unit will be ready for power-up tomorrow. I always like to sleep on my work and reinspect it in the morning when I'm fresh.

More to follow.

thanks much and 73,
ben, kd5byb

From kd5byb at gmail.com Sat Nov 11 14:52:07 2017
From: kd5byb at gmail.com (Ben Hall)
Date: Sat, 11 Nov 2017 13:52:07 -0600
Subject: [BoatAnchors] Arcing / sparking RAL power supply,
 part five and a half
In-Reply-To: <cc0e07ae-c151-3caf-750b-b938d656fedb@kd5byb.net>
References: <eac85d10-9175-4f0c-75d0-2a57fd898209@kd5byb.net>
 <e390bd4e-5479-c741-a172-3a5933770a3d@kd5byb.net>

<83c53a63-c0a1-30c9-0840-de8f57caea1e@kd5byb.net>
<ed1b674a-091a-41c4-8761-2a39556406b5@ws19ops.com>
<CAEv8c7FHMbWCPiV5iQ2prCXFqpsssNtxCYjVdw4y3SesszOK1w@mail.gmail.com>
<0746c2ac-d1b8-43c8-b1a3-884cd2194c65@ws19ops.com>
<02A78F83-D7A4-4CFF-B90F-B0CA96D9DE36@gmail.com>
<c0178998-0dfa-053d-b24e-f96232bba323@kd5byb.net>
<cc0e07ae-c151-3caf-750b-b938d656fedb@kd5byb.net>
Message-ID: <41eecd45-c6ee-2d40-df8a-fdf7d1a80829@gmail.com>

Good afternoon all,

I forgot one important part! I also replaced the large carbon composition resistors in the power supply. Two in parallel are used in series with the 874 regulator tube, and the third is a B+ bleeder.

The RAL power supply is very compact and NOT friendly to work on. The three power resistors are *underneath* a phenolic terminal board. That terminal board must have a dozen wires tied to it. Removing and keeping track of all those wires was going to be a pain...plus it seemed wierd to me to power the power resistors under the phenolic board where they'll get no air circulation.

So here's what I did - I carefully cut the wires to the resistors and after loosening the phenolic board from its stand-offs, was able to fish out the badly drifter carbon composition resistors...without removing any of the wires. I then installed the replacements on the *top* side of the terminal board where they are both easy to install and can get some cooling air across them. Again, thanks to the magic of smaller modern components...I was able to replace two 3-watt resistors and one 2-watt resistor all with 5-watt units with room to spare.

Tomorrow morning I'll power it up and see how it works.

thanks much and 73,
ben, kd5byb

From kd5byb at kd5byb.net Sat Nov 11 14:52:18 2017
From: kd5byb at kd5byb.net (Ben Hall)
Date: Sat, 11 Nov 2017 13:52:18 -0600
Subject: [BoatAnchors] Arcing / sparking RAL power supply,
part five and a half
In-Reply-To: <cc0e07ae-c151-3caf-750b-b938d656fedb@kd5byb.net>
References: <eac85d10-9175-4f0c-75d0-2a57fd898209@kd5byb.net>
<e390bd4e-5479-c741-a172-3a5933770a3d@kd5byb.net>
<83c53a63-c0a1-30c9-0840-de8f57caea1e@kd5byb.net>
<ed1b674a-091a-41c4-8761-2a39556406b5@ws19ops.com>
<CAEv8c7FHMbWCPiV5iQ2prCXFqpsssNtxCYjVdw4y3SesszOK1w@mail.gmail.com>

 <0746c2ac-d1b8-43c8-b1a3-884cd2194c65@ws19ops.com>
 <02A78F83-D7A4-4CFF-B90F-B0CA96D9DE36@gmail.com>
 <c0178998-0dfa-053d-b24e-f96232bba323@kd5byb.net>
 <cc0e07ae-c151-3caf-750b-b938d656fedb@kd5byb.net>
Message-ID: <f73db239-265d-c679-780e-0d563a26a5cf@kd5byb.net>

Good afternoon all,

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Tomorrow morning I'll power it up and see how it works.

thanks much and 73,
ben, kd5byb

From arc5 at ix.netcom.com Sat Nov 11 17:16:02 2017
From: arc5 at ix.netcom.com (David Stinson)
Date: Sat, 11 Nov 2017 16:16:02 -0600
Subject: [BoatAnchors] Arcing / sparking RAL power supply, part five
In-Reply-To: <cc0e07ae-c151-3caf-750b-b938d656fedb@kd5byb.net>
References: <eac85d10-9175-4f0c-75d0-2a57fd898209@kd5byb.net>
 <e390bd4e-5479-c741-a172-3a5933770a3d@kd5byb.net>
 <83c53a63-c0a1-30c9-0840-de8f57caea1e@kd5byb.net>
 <ed1b674a-091a-41c4-8761-2a39556406b5@ws19ops.com>
 <CAEv8c7FHMbWCPiV5iQ2prCXFqpsssNtxCYjVdw4y3SesszOK1w@mail.gmail.com>
 <0746c2ac-d1b8-43c8-b1a3-884cd2194c65@ws19ops.com>
 <02A78F83-D7A4-4CFF-B90F-B0CA96D9DE36@gmail.com>
 <c0178998-0dfa-053d-b24e-f96232bba323@kd5byb.net>
 <cc0e07ae-c151-3caf-750b-b938d656fedb@kd5byb.net>

Message-ID: <002101d35b3a$a9aa2fd0$fcfe8f70$@netcom.com>

Thank you, Ben, for going to the effort to keep
us up on your progress with this project. Looking

forward to part 5.75 ;-)

73 Dave AB5S

From a.b.bonds at Vanderbilt.Edu Mon Nov 13 13:17:18 2017
From: a.b.bonds at Vanderbilt.Edu (Bonds, A B)
Date: Mon, 13 Nov 2017 18:17:18 +0000
Subject: [BoatAnchors] SP-600 Double conversion osc
Message-ID: <C8FFB7BC5D48064D8BF9AD0086503DF98455B82D@ITS-HCWNEM107.ds.vanderbilt.edu>

The SP-600 I am working on shows no evidence of the 3.5 MHz oscillator doing its job. Bands are dead above 7 MHz. Yes, ALL of the Black Beauties have been changed out (whew), and most of them were leaky. The osc tube (V8, 6C4) is good, and I tried substituting another tube known good. All in the passives in the circuit check fine or have been replaced. I get 225 volts on the top of R38 (100k plate load) and 25v on the bottom, indicating 2 ma of plate draw. There is not a hint of 3.5 MHz on pin 6 (grid) of V8 (using a 10x scope probe), signal is just dead flat. I fear my 3.5 MHz crystal is shot. Any suggestions?

I would note that this unit sat on a back porch in all kinds of weather for many years before I adopted it.

Thanks, as always.

A. B. Bonds

From 1oldlens1 at ix.netcom.com Mon Nov 13 13:32:41 2017
From: 1oldlens1 at ix.netcom.com (Richard Knoppow)
Date: Mon, 13 Nov 2017 10:32:41 -0800
Subject: [BoatAnchors] SP-600 Double conversion osc
In-Reply-To: <C8FFB7BC5D48064D8BF9AD0086503DF98455B82D@ITS-HCWNEM107.ds.vanderbilt.edu>
References: <C8FFB7BC5D48064D8BF9AD0086503DF98455B82D@ITS-HCWNEM107.ds.vanderbilt.edu>
Message-ID: <69e31572-d677-b72c-d647-20fcaf9f2b76@ix.netcom.com>

Do you by any chance have a Millen or similar GDO? If so you can test the crystal with it. I don't know where to get crystals if yours turns out to be bad.

On 11/13/2017 10:17 AM, Bonds, A B via BoatAnchors wrote:
> The SP-600 I am working on shows no evidence of the 3.5 MHz oscillator doing its job. Bands are dead above 7 MHz. Yes, ALL of the Black Beauties have been changed out (whew), and most of them were leaky. The osc tube (V8, 6C4) is good, and I tried substituting another tube known good. All in the passives in the circuit check fine or have been replaced. I get 225 volts on the top of R38 (100k plate load) and 25v on the bottom, indicating 2 ma of plate draw. There is not a hint of 3.5 MHz on pin 6 (grid) of V8 (using a 10x scope probe), signal is just dead flat. I fear my 3.5 MHz crystal is shot. Any suggestions?
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>
> Thanks, as always.
>
> A. B. Bonds

--
Richard Knoppow
1oldlens1 at ix.netcom.com
WB6KBL

From ark at ar88.net Mon Nov 13 14:35:38 2017
From: ark at ar88.net (Al Klase)
Date: Mon, 13 Nov 2017 14:35:38 -0500
Subject: [BoatAnchors] SP-600 Double conversion osc
In-Reply-To: <C8FFB7BC5D48064D8BF9AD0086503DF98455B82D@ITS-HCWNEM107.ds.vanderbilt.edu>
References: <C8FFB7BC5D48064D8BF9AD0086503DF98455B82D@ITS-HCWNEM107.ds.vanderbilt.edu>
Message-ID: <41f955c5-4e72-3880-665f-36b5fb77ac64@ar88.net>

A.B.

Clip lead some random 80-meter rock into the circuit, and see if the oscillator runs.

Al

On 11/13/2017 1:17 PM, Bonds, A B via BoatAnchors wrote:
> The SP-600 I am working on shows no evidence of the 3.5 MHz oscillator doing its job. Bands are dead above 7 MHz. Yes, ALL of the Black Beauties have been changed out (whew), and most of them were leaky. The osc tube (V8, 6C4) is good, and I tried substituting another tube known good. All in the passives in the circuit check fine or have been replaced. I get 225 volts on the top of R38 (100k

plate load) and 25v on the bottom, indicating 2 ma of plate draw. There is not a hint of 3.5 MHz on pin 6 (grid) of V8 (using a 10x scope probe), signal is just dead flat. I fear my 3.5 MHz crystal is shot. Any suggestions?
>
> I would note that this unit sat on a back porch in all kinds of weather for many years before I adopted it.
>
> Thanks, as always.
>
> A. B. Bonds
> ____
> BoatAnchors mailing list
> BoatAnchors at theporch.com
> https://imac.theporch.com/mailman/listinfo/boatanchors

--
Al Klase ? N3FRQ
Jersey City, NJ
http://www.skywaves.ar88.net/

From WA5CAB at cs.com Mon Nov 13 16:26:30 2017
From: WA5CAB at cs.com (WA5CAB at cs.com)
Date: Mon, 13 Nov 2017 16:26:30 -0500
Subject: [BoatAnchors] SP-600 Double conversion osc
Message-ID: <55bde0.1aa37856.473b6803@cs.com>

AB,

I have the better part of three of the MC-518 coil & crystal sets for the SCR-536 (=/ 600 channels). 3500 KC is on the list. If you can shoe-horn an FT-243 in there, I may have some on 3500. Would have to go over to Storage and check.

Robert Downs - Houston
wa5cab dot com (Web Store)
MVPA 9480

In a message dated 11/13/2017 12:17:56 PM Central Standard Time, boatanchors at theporch.com writes:
>
> The SP-600 I am working on shows no evidence of the 3.5 MHz oscillator
> doing its job. Bands are dead above 7 MHz. Yes, ALL of the Black Beauties
> have been changed out (whew), and most of them were leaky. The osc tube (V8,
> 6C4) is good, and I tried substituting another tube known good. All in
> the passives in the circuit check fine or have been replaced. I get 225
> volts on the top of R38 (100k plate load) and 25v on the bottom, indicating 2

> ma of plate draw. There is not a hint of 3.5 MHz on pin 6 (grid) of V8 (using a 10x scope probe), signal is just dead flat. I fear my 3.5 MHz crystal is shot. Any suggestions?
>
> I would note that this unit sat on a back porch in all kinds of weather for many years before I adopted it.
>
> Thanks, as always.
>
> A. B. Bonds
>

From a.b.bonds at Vanderbilt.Edu Mon Nov 13 16:34:41 2017
From: a.b.bonds at Vanderbilt.Edu (Bonds, A B)
Date: Mon, 13 Nov 2017 21:34:41 +0000
Subject: [BoatAnchors] SP-600 Double conversion oscillator--resolution
Message-ID: <C8FFB7BC5D48064D8BF9AD0086503DF98455BA92@ITS-HCWNEM107.ds.vanderbilt.edu>

Thanks to Al and Richard for their timely responses.

On doing a search on "SP-600 Crystal" I got a hit on eham.net for the SP-600 product review. FPX77 wrote that his high bands were dead but got relief by cleaning the crystal with alcohol.

What the heck, in for a penny... After some dissection I got the crystal out and apart, and sure enough there was some brown goop right on the rock's surface (two splotches about 1/8" diameter). No telling where from, but I suspect evaporation from the sealant used where the leads leave the case. I sloshed it with 50% isopropyl, let it air dry and reassembled.

Works FB, now it's time to do the alignment.

A. B. Bonds

(who had visions for a while of wheeling this beast to the dumpster, given the (non) availability of said crystals).

From 1oldlens1 at ix.netcom.com Mon Nov 13 18:41:54 2017
From: 1oldlens1 at ix.netcom.com (Richard Knoppow)
Date: Mon, 13 Nov 2017 15:41:54 -0800
Subject: [BoatAnchors] SP-600 Double conversion oscillator--resolution
In-Reply-To: <C8FFB7BC5D48064D8BF9AD0086503DF98455BA92@ITS-HCWNEM107.ds.vanderbilt.edu>
References: <C8FFB7BC5D48064D8BF9AD0086503DF98455BA92@ITS-HCWNEM107.ds.vanderbilt.edu>
Message-ID: <93c00bf1-b0e6-cefe-7a8e-b708b82a3612@ix.netcom.com>

That is a very useful tip. I would have used 99+% isopropyl to avoid moisture but what you did worked. I have also heard of baking dead crystals to bring them back to life.

I would never dump it, someone could use the parts. Also, one can arrange the oscillator to work as an LC without the crystal.

In the design notes TMC published for the GPR-90 they said they found that there was very little difference between a crystal and an LC oscillator for the second conversion which is at the same frequency in both sets.

On 11/13/2017 1:34 PM, Bonds, A B via BoatAnchors wrote:

> Thanks to Al and Richard for their timely responses.
>
> On doing a search on "SP-600 Crystal" I got a hit on eham.net for the SP-600 product review. FPX77 wrote that his high bands were dead but got relief by cleaning the crystal with alcohol.
>
> What the heck, in for a penny... After some dissection I got the crystal out and apart, and sure enough there was some brown goop right on the rock's surface (two splotches about 1/8" diameter). No telling where from, but I suspect evaporation from the sealant used where the leads leave the case. I sloshed it with 50% isopropyl, let it air dry and reassembled.
>
> Works FB, now it's time to do the alignment.
>
> A. B. Bonds
>
> (who had visions for a while of wheeling this beast to the dumpster, given the (non) availability of said crystals).

--
Richard Knoppow
1oldlens1 at ix.netcom.com
WB6KBL

From wb3fau55 at neo.rr.com Tue Nov 14 11:59:51 2017
From: wb3fau55 at neo.rr.com (wb3fau55 at neo.rr.com)
Date: Tue, 14 Nov 2017 11:59:51 -0500
Subject: [BoatAnchors] SP-600 Double conversion oscillator--resolution
In-Reply-To: <C8FFB7BC5D48064D8BF9AD0086503DF98455BA92@ITS-HCWNEM107.ds.vanderbilt.edu>
Message-ID: <20171114165951.7GHKG.73252.root@cdptpa-web03>

Alignment is a pain bonds, take your time. Becomes a screaming hot RX after align. Get it tracking real good, really comes alive! Russ.

---- "Bonds wrote:

> Thanks to Al and Richard for their timely responses.

>
> On doing a search on "SP-600 Crystal" I got a hit on eham.net for the SP-600 product review. FPX77 wrote that his high bands were dead but got relief by cleaning the crystal with alcohol.
>
> What the heck, in for a penny... After some dissection I got the crystal out and apart, and sure enough there was some brown goop right on the rock's surface (two splotches about 1/8" diameter). No telling where from, but I suspect evaporation from the sealant used where the leads leave the case. I sloshed it with 50% isopropyl, let it air dry and reassembled.
>
> Works FB, now it's time to do the alignment.
>
> A. B. Bonds
>
> (who had visions for a while of wheeling this beast to the dumpster, given the (non) availability of said crystals).
> ____
> BoatAnchors mailing list
> BoatAnchors at theporch.com
> https://imac.theporch.com/mailman/listinfo/boatanchors

From kd5byb at kd5byb.net Sat Nov 18 14:10:32 2017
From: kd5byb at kd5byb.net (Ben Hall)
Date: Sat, 18 Nov 2017 13:10:32 -0600
Subject: [BoatAnchors] Arcing / sparking RAL power supply, part six
In-Reply-To: <f73db239-265d-c679-780e-0d563a26a5cf@kd5byb.net>
References: <eac85d10-9175-4f0c-75d0-2a57fd898209@kd5byb.net>
 <e390bd4e-5479-c741-a172-3a5933770a3d@kd5byb.net>
 <83c53a63-c0a1-30c9-0840-de8f57caea1e@kd5byb.net>
 <ed1b674a-091a-41c4-8761-2a39556406b5@ws19ops.com>
 <CAEv8c7FHMbWCPiV5iQ2prCXFqpsssNtxCYjVdw4y3SesszOK1w@mail.gmail.com>
 <0746c2ac-d1b8-43c8-b1a3-884cd2194c65@ws19ops.com>
 <02A78F83-D7A4-4CFF-B90F-B0CA96D9DE36@gmail.com>
 <c0178998-0dfa-053d-b24e-f96232bba323@kd5byb.net>
 <cc0e07ae-c151-3caf-750b-b938d656fedb@kd5byb.net>
 <f73db239-265d-c679-780e-0d563a26a5cf@kd5byb.net>
Message-ID: <4ce6b6fc-1994-413f-b2fe-91a7713b2901@kd5byb.net>

Good afternoon all,

Got sidetracked by some other stuff I needed to take care of so only got back to the RAL power supply this morning. Upon double-checking my work, I went to power it up on my variac with voltage/current monitoring.

It didn't work. At all. No voltages on anything. No AC even getting into the unit. A quick check of the fuse in my "cheater cord" showed it was blown. So I put in another 2 amp unit and proceeded to power it up again. Same result. So I'm thinking - once is a fluke, twice is a pattern, so I got out the meter and started troubleshooting. I've got a short somewhere.

With the power switch off, resistance across the line terminals was infinite. With the switch on...it varied from 5 ohms to 25 ohms depending on how I wiggled the power switch. Resistance across the switch itself also varied about the same. Now I've got two problems - a power switch that isn't healthy...and a short...

I thought to myself - where could I have a short? The power line filter seemed like a good place to check, so it came apart. <insert bad language here> I installed the common-mode choke incorrectly! It was a dead short across the input.

After taking the whole thing apart, turning the common mode choke in the right direction, and replacing the power switch with one from the parts bin...I went to fire it up. SNAP! Off went the GFCI. <sigh> Did this a couple of more times to ensure it wasn't a one-time thing.

So I move the unit to a non-GFCI outlet and fired it up very carefully. All went well - voltages as expected and no arcing-sparking noise.

Now to figure out why the GFCI is tripping. Line-to-ground class Y safety caps of 0.01uF should NOT trip the GFCI.

thanks much and 73,
ben, kd5byb

From kd5byb at kd5byb.net Sat Nov 18 16:23:20 2017
From: kd5byb at kd5byb.net (Ben Hall)
Date: Sat, 18 Nov 2017 15:23:20 -0600
Subject: [BoatAnchors] Arcing / sparking RAL power supply, part six
In-Reply-To: <4ce6b6fc-1994-413f-b2fe-91a7713b2901@kd5byb.net>
References: <eac85d10-9175-4f0c-75d0-2a57fd898209@kd5byb.net>
 <e390bd4e-5479-c741-a172-3a5933770a3d@kd5byb.net>
 <83c53a63-c0a1-30c9-0840-de8f57caea1e@kd5byb.net>
 <ed1b674a-091a-41c4-8761-2a39556406b5@ws19ops.com>
 <CAEv8c7FHMbWCPiV5iQ2prCXFqpsssNtxCYjVdw4y3SesszOK1w@mail.gmail.com>
 <0746c2ac-d1b8-43c8-b1a3-884cd2194c65@ws19ops.com>
 <02A78F83-D7A4-4CFF-B90F-B0CA96D9DE36@gmail.com>
 <c0178998-0dfa-053d-b24e-f96232bba323@kd5byb.net>
 <cc0e07ae-c151-3caf-750b-b938d656fedb@kd5byb.net>
 <f73db239-265d-c679-780e-0d563a26a5cf@kd5byb.net>
 <4ce6b6fc-1994-413f-b2fe-91a7713b2901@kd5byb.net>

Message-ID: <732bab8a-792b-1b52-776a-f7ebaaa59bd0@kd5byb.net>

On 11/18/2017 1:10 PM, Ben Hall via BoatAnchors wrote:
> Now to figure out why the GFCI is tripping.? Line-to-ground class Y safety caps of 0.01uF should NOT trip the GFCI.

I figured this one out. A splash of solder on my power line PCB was connecting neutral to ground! Gah!

Once that was rectified...no more GFCI trips, yay! Time for a cold 807; I'm pooped.

thanks much and 73,
ben, kd5byb

From wb3fau55 at neo.rr.com Sat Nov 18 18:44:39 2017
From: wb3fau55 at neo.rr.com (wb3fau55 at neo.rr.com)
Date: Sat, 18 Nov 2017 18:44:39 -0500
Subject: [BoatAnchors] BBODs, black beauties, and others
Message-ID: <20171118234439.4NONQ.200627.root@cdptpa-web11>

Folks I have a question about these. The black striped variety - who was the maker of these? Russ.

From kb8tad at gmail.com Sun Nov 19 12:55:56 2017
From: kb8tad at gmail.com (Rich Post)
Date: Sun, 19 Nov 2017 12:55:56 -0500
Subject: [BoatAnchors] BBODs, black beauties, and others
In-Reply-To: <20171118234439.4NONQ.200627.root@cdptpa-web11>
References: <20171118234439.4NONQ.200627.root@cdptpa-web11>
Message-ID: <CAEJr0Fvfve8PuYu4F5DLB_XB+2LZGeHBVjJo+qoW1Lr1FrvX-g@mail.gmail.com>

Hi Russ,

The maker of the "Black Beauty" caps was Sprague. I automatically suspect any of those caps as leaky. I have also seen leakage in most of the later relatives with black plastic body and plain text in place of stripes. HOWEVER, recently in restoring an NC-100 (RCK Airways version, written up in my column in September's "The Spectrum Monitor"), I found that the caps had all been replaced many years ago with Sprague black body caps marked with red letters as "6TM". I replaced a few of those and tested them. NO leakage on my Sencore LC-75. I still ended up replacing all the ones that see high voltage. Afterwards, I tested all of the "6TM" caps I had replaced and found all to test with zero leakage. There was one other Sprague cap marked in yellow text that was not a 6TM. It was leaky. Apparently the "6TM" caps are in demand for restorers of guitar amps. Now

I know why. I believe that series is mylar.

Some more modern caps are problematic as well. I had both "X" caps in my Tektronix 2445 scope blow letting out serious smoke. Thankfully, Tek had wired low-value resistors in series with the "X" rated caps ("X" caps are rated for across the power line input). I have seen similar X" caps with small cracks in the outer plastic so I suspect that the plastic used was unstable which may also have been the issue with the Black Beauty caps.

73 de Rich KB8TAD

On Sat, Nov 18, 2017 at 6:44 PM, Russ Dworakowski WB3FAU via BoatAnchors <
boatanchors at theporch.com> wrote:

> --question about. The black striped variety - who was the maker of
> these?
>

From 4cx250b at miamioh.edu Sun Nov 19 13:18:56 2017
From: 4cx250b at miamioh.edu (Jim Garland)
Date: Sun, 19 Nov 2017 11:18:56 -0700
Subject: [BoatAnchors] BBODs, black beauties, and others
In-Reply-To: <CAEJr0Fvfve8PuYu4F5DLB_XB+2LZGeHBVjJo+qoW1Lr1FrvX-g@mail.gmail.com>
References: <20171118234439.4NONQ.200627.root@cdptpa-web11>
 <CAEJr0Fvfve8PuYu4F5DLB_XB+2LZGeHBVjJo+qoW1Lr1FrvX-g@mail.gmail.com>
Message-ID: <76f7018f-7146-503c-6d27-db44e928f171@miamioh.edu>

Hi Rich and Russ,

I replaced the BBs (of which there are dozens) in my SX88 and KWM1 a few years ago, and agree with RIch that any that have had high voltage across them (e.g., plate-grid coupling) should routinely be replaced. Often these show electrolyte leakage at the seals, as well as lots of loss.

The BBs in low voltage parts of my circuits (e.g., cathode bypass, or tone controls) all tested fine, although I replaced them anyway. Apparently, BBs that test well are in great demand, as Rich also noted, by guitar amp owners and other audio buffs who "imagine" that they lend a unique and highly desirable distortion to the sound. I ended up posting my good BBs on eBay and was astounded when the bidding got up to several hundred dollars for a dozen caps I'd been planning on tossing out. The high bidder was a Japanese audio guy who thought he'd struck gold. In the audio world, I believe they're often called "bumblebee capacitors," because of their yellow bands and black bodies

73,

Jim W8ZR.

On 11/19/2017 10:55 AM, Rich Post via BoatAnchors wrote:
> Hi Russ,
>
> The maker of the "Black Beauty" caps was Sprague. I automatically suspect
> any of those caps as leaky. I have also seen leakage in most of the later
> relatives with black plastic body and plain text in place of stripes.
> HOWEVER, recently in restoring an NC-100 (RCK Airways version, written up
> in my column in September's "The Spectrum Monitor"), I found that the caps
> had all been replaced many years ago with Sprague black body caps marked
> with red letters as "6TM". I replaced a few of those and tested them. NO
> leakage on my Sencore LC-75. I still ended up replacing all the ones that
> see high voltage. Afterwards, I tested all of the "6TM" caps I had
> replaced and found all to test with zero leakage. There was one other
> Sprague cap marked in yellow text that was not a 6TM. It was leaky.
> Apparently the "6TM" caps are in demand for restorers of guitar amps. Now
> I know why. I believe that series is mylar.
>
> Some more modern caps are problematic as well. I had both "X" caps in my
> Tektronix 2445 scope blow letting out serious smoke. Thankfully, Tek had
> wired low-value resistors in series with the "X" rated caps ("X" caps are
> rated for across the power line input). I have seen similar X" caps with
> small cracks in the outer plastic so I suspect that the plastic used was
> unstable which may also have been the issue with the Black Beauty caps.
>
> 73 de Rich KB8TAD
>
>
> On Sat, Nov 18, 2017 at 6:44 PM, Russ Dworakowski WB3FAU via BoatAnchors <
> boatanchors at theporch.com> wrote:
>
>> --question about. The black striped variety - who was the maker of
>> these?
>>
> ____
> BoatAnchors mailing list
> BoatAnchors at theporch.com
> https://imac.theporch.com/mailman/listinfo/boatanchors

From kd5byb at kd5byb.net Sun Nov 19 14:38:15 2017
From: kd5byb at kd5byb.net (Ben Hall)
Date: Sun, 19 Nov 2017 13:38:15 -0600
Subject: [BoatAnchors] RAL power supply, part six and half

In-Reply-To: <732bab8a-792b-1b52-776a-f7ebaaa59bd0@kd5byb.net>
References: <eac85d10-9175-4f0c-75d0-2a57fd898209@kd5byb.net>
 <e390bd4e-5479-c741-a172-3a5933770a3d@kd5byb.net>
 <83c53a63-c0a1-30c9-0840-de8f57caea1e@kd5byb.net>
 <ed1b674a-091a-41c4-8761-2a39556406b5@ws19ops.com>
 <CAEv8c7FHMbWCPiV5iQ2prCXFqpsssNtxCYjVdw4y3SesszOK1w@mail.gmail.com>
 <0746c2ac-d1b8-43c8-b1a3-884cd2194c65@ws19ops.com>
 <02A78F83-D7A4-4CFF-B90F-B0CA96D9DE36@gmail.com>
 <c0178998-0dfa-053d-b24e-f96232bba323@kd5byb.net>
 <cc0e07ae-c151-3caf-750b-b938d656fedb@kd5byb.net>
 <f73db239-265d-c679-780e-0d563a26a5cf@kd5byb.net>
 <4ce6b6fc-1994-413f-b2fe-91a7713b2901@kd5byb.net>
 <732bab8a-792b-1b52-776a-f7ebaaa59bd0@kd5byb.net>
Message-ID: <72638403-33df-3ddd-b433-f79b878b8526@kd5byb.net>

Good afternoon all,

This should be the last installment of the RAL power supply series. :) This morning I fabricated up a couple of power resistors to provide a load for the RAL power supply. The filament resistor was set to draw approximately two amps, the B+ resistors were set to draw about 45 milliamps. Both values are out of the RAL manual for when the set is run from batteries.

With the proper current load, the output of the supply was a little high. Even with the input taps set to 120 VAC, and my line showing 123 VAC, I was getting about 6.6 VAC filament and about 195 VDC B+. The regulated +90V supply was right at 88 VDC as you'd expect. While these are likely within tolerance, I'd rather run the set on the low end of the tolerance rather than the high end.

One of the things I've been meaning to build for some time now is a bucking transformer setup. Looks like this set will finally push me over the edge to build one. :)

thanks much and 73,
ben, kd5byb

From infomet at embarqmail.com Sun Nov 19 17:35:25 2017
From: infomet at embarqmail.com (Wilson Lamb)
Date: Sun, 19 Nov 2017 17:35:25 -0500 (EST)
Subject: [BoatAnchors] HT-41
Message-ID: <1064973505.150117554.1511130925478.JavaMail.root@embarqmail.com>

Seems like it's amplifier season.
Simple stuff, easy to work on with large tools, my kind of equipment!
Hamfest find today, HT-41, dusty but by no means bad shape.

Monster plate transformer, for a tabletop!
Followed me home.
Funny thing is, it has been converted to 4-125A tubes, which I like.
It only has one, but I have some available.
Has anyone here seen this conversion?
At least I'm guessing it's a conversion.
I have no experience with the original tubes, 7094s, but grounded grid is grounded grid, so it can br too far off.
I ahven't looked, but guess there's an added filament choke underneath.
The 7094s have cathodes, wery handy for grounded grid, since they can be truly cathode driven.
Comments, experience with HT-41 welcome,
Wilson
W4BOH

From WA5CAB at cs.com Sun Nov 19 18:01:13 2017
From: WA5CAB at cs.com (WA5CAB at cs.com)
Date: Sun, 19 Nov 2017 18:01:13 -0500
Subject: [BoatAnchors] WANTED: 6-PIN 1-1/8" DIA. MALE CHASSIS CONNECTOR
Message-ID: <5daad5.db7239a.47436737@cs.com>

Looking for a 6-pin, 1-1/8" nominal diameter male large banana pin type chassis connector..

Needed to restore a Bendix RA-1B.

Same as Signal Corps SO-45. Mates with #134 cable connector from RU series and some other Navy connectors. Also mates with PL-106 and PL-90 except for locking mechanism.

Possible sources are RU Liaison receiver dynamotor (but not GF/RU or SCR-183/283 dynamotor, which is 1-1/4" dia.), GP-6 and GP-7, RM-21-A/B/C but not D. Probably others. ID of the metal retainer sleeve is about 1.139" If you have one with a bad or missing sleeve, I have one of those.

Robert Downs - Houston
wa5cab dot com (Web Store)
MVPA 9480

From rbsingl at ilstu.edu Sun Nov 19 18:01:28 2017
From: rbsingl at ilstu.edu (Singley, Rodger)
Date: Sun, 19 Nov 2017 23:01:28 +0000
Subject: [BoatAnchors] HT-41
In-Reply-To: <1064973505.150117554.1511130925478.JavaMail.root@embarqmail.com>
References: <1064973505.150117554.1511130925478.JavaMail.root@embarqmail.com>
Message-ID:
<MWHPR03MB2752CA2765C07015AD1BE499B82D0@MWHPR03MB2752.namprd03.prod.outlook.com>

Wilson,

I have seen a conversion with triode connected 813 tubes but not the 4-125A but that should also be a good possibility.

The 7094 is an interesting tube, basically a TV sweep tube on steroids, and is a high perveance design intended to provide a lot of output with high gain at a fairly low plate voltage. It never seemed to have caught on so it isn't easy to find now and the tube also seems prone to having seal issues so it is good that your amp was converted.

The original amp was supposedly somewhat popular with CBers due to its low drive option.

I have one still with the 7094 tubes as part of a HT-37/SX-111 station and it is performing OK.

I do recall reading that some of the 813 conversions were a little unstable so the conversion of yours may also require a little "fine tuning".

It does have a seriously heavy power supply.

Rodger WQ9E

From arc5 at ix.netcom.com Mon Nov 20 07:06:34 2017
From: arc5 at ix.netcom.com (David Stinson)
Date: Mon, 20 Nov 2017 06:06:34 -0600
Subject: [BoatAnchors] RAL power supply, part six and half
In-Reply-To: <72638403-33df-3ddd-b433-f79b878b8526@kd5byb.net>
References: <eac85d10-9175-4f0c-75d0-2a57fd898209@kd5byb.net>
 <e390bd4e-5479-c741-a172-3a5933770a3d@kd5byb.net>
 <83c53a63-c0a1-30c9-0840-de8f57caea1e@kd5byb.net>
 <ed1b674a-091a-41c4-8761-2a39556406b5@ws19ops.com>
 <CAEv8c7FHMbWCPiV5iQ2prCXFqpsssNtxCYjVdw4y3SesszOK1w@mail.gmail.com>
 <0746c2ac-d1b8-43c8-b1a3-884cd2194c65@ws19ops.com>
 <02A78F83-D7A4-4CFF-B90F-B0CA96D9DE36@gmail.com>
 <c0178998-0dfa-053d-b24e-f96232bba323@kd5byb.net>
 <cc0e07ae-c151-3caf-750b-b938d656fedb@kd5byb.net>
 <f73db239-265d-c679-780e-0d563a26a5cf@kd5byb.net>
 <4ce6b6fc-1994-413f-b2fe-91a7713b2901@kd5byb.net>
 <732bab8a-792b-1b52-776a-f7ebaaa59bd0@kd5byb.net>
 <72638403-33df-3ddd-b433-f79b878b8526@kd5byb.net>
Message-ID: <000f01d361f8$02b77ec0$08267c40$@netcom.com>

Thank you for keeping us up on your project, Ben.

I enjoyed following-along.
Built a "line bucker" here to tame the "hot" 125V
at my house. I used the big transformer inside a
defunct computer cabinet UPS that had 24V in
batteries.
Just stripped-out all the guts except the
transformer,
power out sockets and line cord. Wired the
transformer
for bucking and it outputs a nice 110V. Fits in
the
bottom of a 19 in rack and keeps my Drake 7-line
happy.
If you have a "dead" UPS around, give it a try.

-----Original Message-----

One of the things I've been meaning to build for
some time now is a
bucking transformer setup. Looks like this set
will finally push me
over the edge to build one. :)

thanks much and 73,
ben, kd5byb
____

From 1oldlens1 at ix.netcom.com Sun Nov 19 15:15:09 2017
From: 1oldlens1 at ix.netcom.com (Richard Knoppow)
Date: Sun, 19 Nov 2017 12:15:09 -0800
Subject: [BoatAnchors] BBODs, black beauties, and others
In-Reply-To: <76f7018f-7146-503c-6d27-db44e928f171@miamioh.edu>
References: <20171118234439.4NONQ.200627.root@cdptpa-web11>
 <CAEJr0Fvfve8PuYu4F5DLB_XB+2LZGeHBVjJo+qoW1Lr1FrvX-g@mail.gmail.com>
 <76f7018f-7146-503c-6d27-db44e928f171@miamioh.edu>
Message-ID: <f08e1289-ec5b-1319-fe2a-d88773500d8f@ix.netcom.com>

If they are BBs its not electrolyte but rather oil. There were two series; one up to 400V were dry, higher than 400V were oil filled. The oil was introduced through a small tube on one side that had a lead welded into it after filling. You can tell these because of the short section of lead of larger diameter on one side. Evidently, the seals were faulty so the oil leaked out after a time. I think the BBs had other problems too leading to the cracking of the casings.

There were other paper caps with coding stripes on them, some with cream colored cases, are shown in the military SP-600 manuals. These did not have the very short life problems of the BB but all paper caps should be replaced after many years because the paper degrades. The life limit of paper caps was well known and is discussed in some design books. The life was proportional to the ratio of the voltage applied to the capacitor to its voltage rating, in other words, a 600V cap with 200V across it would last longer than a 200V cap run at 200V. The effect on the paper may have been partly from electrolysis of impurities in the paper. It was found that the less moisture the cap could absorb the less this effect was so various means were used to protect the capacitor from air. The early wax coated caps in paper cases were not very effective. Later caps used plastic cases which worked better. Caps intended to have the longest possible life were sealed in oil filled cans. These had longer life than the wax or plastic kind but still would increase in leakage over time. Sometime around the 1950s caps with plastic dielectric became available. These do not suffer from the degradation of paper and have extremely long life. There are various kinds of plastics used as dielectric, each with somewhat different properties. Probably the best overall is polypropylene which is superior to even paper for minimum dielectric storage and is as stable as Class-1 ceramic or silvered mica caps.

The earliest commercial plastic caps I can find were made by the Condenser Products Co under the name "Plasticon", these dat back to the late 1940s. Condenser Products is still in business but has no historical records so I was unable to find out what kind of dielectric they used. They were quite expensive compared to paper or ceramic caps so are not widely found.

I don't know why Sprague had so much trouble with the BB series. A later version of these caps was sold as "Telecap" indicating they were for television use where they were subjected to high temperatures and generally rugged service. I have not heard that Telecaps had the same problems with early failure and generally cracking and falling apart that the "Black Beauty" had. Incidently, BB was a Sprague trade-mark.

FWIW, paper caps have some good characteristics such as low dielectric storage and were the best available for many years, however, plastic caps can be made with much lower parasitic inductance and much better HF properties.

I am leaving some of the previous thread attached so readers will know what this is about.

On 11/19/2017 10:18 AM, Jim Garland via BoatAnchors wrote:
> Hi Rich and Russ,
>
> I replaced the BBs (of which there are dozens) in my SX88 and KWM1 a few
> years ago, and agree with RIch that any that have had high voltage
> across them (e.g., plate-grid coupling) should routinely be replaced.
> Often these show electrolyte leakage at the seals, as well as lots of loss.

>
> The BBs in low voltage parts of my circuits (e.g., cathode bypass, or
> tone controls) all tested fine, although I replaced them anyway.
> Apparently, BBs that test well are in great demand, as Rich also noted,
> by guitar amp owners and other audio buffs who "imagine" that they lend
> a unique and highly desirable distortion to the sound. I ended up
> posting my good BBs on eBay and was astounded when the bidding got up to
> several hundred dollars for a dozen caps I'd been planning on tossing
> out. The high bidder was a Japanese audio guy who thought he'd struck
> gold. In the audio world, I believe they're often called "bumblebee
> capacitors," because of their yellow bands and black bodies
>
> 73,
>
> Jim W8ZR.
>

--
Richard Knoppow
1oldlens1 at ix.netcom.com
WB6KBL

From arc5 at ix.netcom.com Mon Nov 20 14:23:54 2017
From: arc5 at ix.netcom.com (David Stinson)
Date: Mon, 20 Nov 2017 13:23:54 -0600
Subject: [BoatAnchors] Need Two RAX Receiver Dynamotors
Message-ID: <000001d36235$2191d330$64b57990$@netcom.com>

This is an RAX receiver dynamotor.

https://photos.app.goo.gl/VT4A0QgOHPvSEOOF2

https://photos.app.goo.gl/puS9imRQAUPyf3st2

https://photos.app.goo.gl/1oc4wgnIIbBj1ZgQ2

I need two of them.
Trade or purchase with shipping to 75173.

Thanks!

73 Dave AB5S

From wb3fau55 at neo.rr.com Wed Nov 22 18:31:48 2017
From: wb3fau55 at neo.rr.com (wb3fau55 at neo.rr.com)
Date: Wed, 22 Nov 2017 18:31:48 -0500
Subject: [BoatAnchors] BBODs- R390A
Message-ID: <20171122233148.P9HAA.237309.root@cdptpa-web11>

Folks, just an update, I replaced 20 BBODs in the IF strip in an 390A.
Problems with AGC, sensitivity, and selectivity. All fixed. Russ.

From gsantacanav at gmail.com Fri Nov 24 19:53:33 2017
From: gsantacanav at gmail.com (Guido Santacana)
Date: Fri, 24 Nov 2017 20:53:33 -0400
Subject: [BoatAnchors] BBODs- R390A
In-Reply-To: <20171122233148.P9HAA.237309.root@cdptpa-web11>
References: <20171122233148.P9HAA.237309.root@cdptpa-web11>
Message-ID: <D62D812B-A680-40F4-BE90-EADC4598F6CE@gmail.com>

I replaced the ones in my recently acquired EAC 390A before even testing the unit. Also replaced those in the RF subchassis. Everything was working fine but an intermittent AGC problem appeared. I found the 2uF cap (c551) leaky and replaced it. The AGC problem seemed to go away but soon returned. The AGC works fine for a while, then starts to overload on large signals. If one moves the AGC switch from slow to medium it fixes the problem for a while but eventually it comes back. It looks like another bad cap. The problem appears in all the positions of the selectivity switch.

Best 73s

Guido

Guido Santacana KP4FAR

Sent from my iPhone

> On Nov 22, 2017, at 7:31 PM, Russ Dworakowski WB3FAU via BoatAnchors
<boatanchors at theporch.com> wrote:
>
> Folks, just an update, I replaced 20 BBODs in the IF strip in an 390A.
Problems with AGC, sensitivity, and selectivity. All fixed. Russ.
> ____
> BoatAnchors mailing list
> BoatAnchors at theporch.com
> https://imac.theporch.com/mailman/listinfo/boatanchors

From 1oldlens1 at ix.netcom.com Fri Nov 24 22:04:23 2017
From: 1oldlens1 at ix.netcom.com (Richard Knoppow)
Date: Fri, 24 Nov 2017 19:04:23 -0800
Subject: [BoatAnchors] BBODs- R390A
In-Reply-To: <20171122233148.P9HAA.237309.root@cdptpa-web11>
References: <20171122233148.P9HAA.237309.root@cdptpa-web11>
Message-ID: <a03c37b5-fdfa-37b7-fd60-4a72609b06e4@ix.netcom.com>

I am astonished that Collins was using BBs in the R-390A, I thought such a comparatively late receiver would have ceramic caps in it. Collins used them in the R-388/51J-3. Any paper caps that old should be replaced but the BBs seem to be the worst of a bad lot. Did yours have split cases? Some do and some do not, the ones in the SP-600 are often split or even have pieces out of them. The military manuals for the SP-600 show Aerovox caps, white plastic cases with the same stripe coding found on the BBs. They probably switched because of price but the prices in the old "Radio's Master" catalogs show almost no variation in price among the popular brands for the same type and value. However, I am sure that a large purchase like a receiver manufacturer would make would be individually negotiated so perhaps there was some saving.

Also watch out for war time equipment with Micamold paper caps. These are a flat package that look like large mica caps but are paper. Solar made similar caps. They are almost always bad due to age.

BTW both Micamold and Solar disappeared shortly after WW-2. They were major manufacturers so I am somewhat puzzled. I wonder if anyone here knows what happened to them.

On 11/22/2017 3:31 PM, Russ Dworakowski WB3FAU via BoatAnchors wrote:

> Folks, just an update, I replaced 20 BBODs in the IF strip in an 390A.
Problems with AGC, sensitivity, and selectivity. All fixed. Russ.

--
Richard Knoppow
1oldlens1 at ix.netcom.com
WB6KBL

From wb3fau55 at neo.rr.com Fri Nov 24 18:35:22 2017
From: wb3fau55 at neo.rr.com (wb3fau55 at neo.rr.com)
Date: Fri, 24 Nov 2017 18:35:22 -0500
Subject: [BoatAnchors] capacitor mfgrs
Message-ID: <20171124233522.33FOA.249381.root@cdptpa-web11>

Thanks to all for input about BBODs. Next question- what became of makers Mallory. Sangamo and Cornell Dublier? Russ.

From k4pf at juno.com Sat Nov 25 16:02:04 2017

From: k4pf at juno.com (k4pf at juno.com)
Date: Sat, 25 Nov 2017 21:02:04 GMT
Subject: [BoatAnchors] Samuel F.B. Morse in the news
Message-ID: <20171125.160204.16175.2@webmail06.vgs.untd.com>

Hi, Gang

This article would have been more appropriate for Halloween -

https://www.atlasobscura.com/articles/graveyard-hard-apple-cider-brooklyn-green-wood-cemetery

73,
Ed Knobloch

From 1oldlens1 at ix.netcom.com Sat Nov 25 13:44:00 2017
From: 1oldlens1 at ix.netcom.com (Richard Knoppow)
Date: Sat, 25 Nov 2017 10:44:00 -0800
Subject: [BoatAnchors] capacitor mfgrs
In-Reply-To: <20171124233522.33FOA.249381.root@cdptpa-web11>
References: <20171124233522.33FOA.249381.root@cdptpa-web11>
Message-ID: <a720ecbb-70ae-2398-accb-5dfcd59094e4@ix.netcom.com>

CDE is still in business and widely distributed. A Google search did not come up with any history of Sangamo or Mallory. Both made high quality products. I suspect they were bought out by someone.

I asked about Micamold and Solar because they were both well established and vanished in the late 1940s. Solar shows up in the index of the 1947 "Radio's Master" but there are no catalog pages, so it appears they had reserved space but didn't use it. The answer may lie in the old trade publications but without some sort of clue as to date it would take more research than I want to do.

RCA used both Micamold and Solar flat paper caps in the AR-88 in positions that were originally RCA-made mica caps. During WW-2 mica was in short supply so evidently these caps were good enough at RF to be substituted. The original RCA caps are lozenge shaped and of a peculiar pinkish purple color. All those I have checked were still good.

On 11/24/2017 3:35 PM, Russ Dworakowski WB3FAU via BoatAnchors wrote:
> Thanks to all for input about BBODs. Next question- what became of makers Mallory. Sangamo and Cornell Dublier? Russ.

--
Richard Knoppow
1oldlens1 at ix.netcom.com
WB6KBL

From 1oldlens1 at ix.netcom.com Sat Nov 25 15:12:42 2017
From: 1oldlens1 at ix.netcom.com (Richard Knoppow)
Date: Sat, 25 Nov 2017 12:12:42 -0800
Subject: [BoatAnchors] BBODs- R390A
In-Reply-To: <a03c37b5-fdfa-37b7-fd60-4a72609b06e4@ix.netcom.com>
References: <20171122233148.P9HAA.237309.root@cdptpa-web11>
 <a03c37b5-fdfa-37b7-fd60-4a72609b06e4@ix.netcom.com>
Message-ID: <d2ba6775-c5bb-0025-9b64-f11c42e70b1d@ix.netcom.com>

After reading about the Black Beauty caps found in an R-390A I wonder what kind of caps were generally used in them and weather it varies with the manufacturer. Collins was using dog bone ceramics in the R-388 and the modifications to the SP-600-JX to replace the BBs with ceramics had taken place in the early 1950s (don't know the exact date). Since the R-390 was supposed to be an "ultimate" no holds barred receiver I wonder about this. I am sure that a number of list members either have R-390's or have worked on them so could give some idea.

BBs are found in a lot of high quality equipment such as Hewlett-Packard gear, they don't seem to have failed so catastrophically in most of it as in the SP-600. Of course by now all paper caps are suspect because they have a well known life limit but the BBs in the Hammarlund gear seem to have failed within a few years of manufacture.

BTW, the BBs I've dissected all had badly distorted windings. Perhaps this was done deliberately to adjust the values but I don't remember seeing it in other caps.

--
Richard Knoppow
1oldlens1 at ix.netcom.com
WB6KBL

From whitebear1122 at comcast.net Sun Nov 26 19:53:46 2017
From: whitebear1122 at comcast.net (Whitebear1122)
Date: Sun, 26 Nov 2017 18:53:46 -0600
Subject: [BoatAnchors] BC-348R Question
References: <C71881FD-DF30-4E8C-967F-E570FEB3D7E2@comcast.net>
Message-ID: <A524CD91-48CD-4E26-BA1A-4C56FC7AE1B6@comcast.net>

I am thinking of tackling a restoration of my BC-348R and have a few questions. It looks like brand new, unmolested as far as i can tell, with dynamotor still installed. It is the ?R? version so it was made by Belmont Radio. I bought it maybe 10-15 years ago and it?s sat on the shelf collecting dust.

I?ve seen some posts over the years where guys recommend recapping the coupling caps right out of the chute. While I?ve read that the Micamold caps are a must.

I just pulled the chassis from the cabinet. Gads the insides look like brand new. I see several Micamold caps?

I?d like to restore the dynamotor as well and run it from that. I?ve seem a couple of nice DM-28 restoration videos on Youtube so that seems straight forward.

I?d appreciate hearing some advice. Thanks. 73, Scott WA9WFA

From knjhanlon at msn.com Mon Nov 27 13:51:11 2017
From: knjhanlon at msn.com (JAMES HANLON)
Date: Mon, 27 Nov 2017 18:51:11 +0000
Subject: [BoatAnchors] BC-348R Question
In-Reply-To: <A524CD91-48CD-4E26-BA1A-4C56FC7AE1B6@comcast.net>
References: <C71881FD-DF30-4E8C-967F-E570FEB3D7E2@comcast.net>,
 <A524CD91-48CD-4E26-BA1A-4C56FC7AE1B6@comcast.net>
Message-ID:
<MWHPR2001MB0925640F74246A9C8EB1D6EBA0250@MWHPR2001MB0925.namprd20.prod.outlook.com>

Scott,

If you have a brand new, unmolested BC-348R, that's got to be pretty rare at this point. You might want to think about offering it to a museum or one of the WW2 aircraft restorations for display.

I have two BC-348-Rs. One came from a friend at work, his former novice receiver. It was heavily "converted." The other I picked up off a curb in Albuquerque, it was waiting on the trash men to pick it up! It was only lightly molested, it had a second gain control added and the function switch modified. I removed the additional gain control and patched and repainted the hole and restored the original wiring to the switch. It still has its dynamotor and shock mount. If you really want to "restore" a BC-348-R and it turns out that involves replacing all of the caps, maybe you'd be interested in starting with the one I have.

Jim Hanlon, W8KGI

____
From: Whitebear1122 <whitebear1122 at comcast.net>
Sent: Sunday, November 26, 2017 5:53 PM
To: boatanchors at theporch.com
Subject: [BoatAnchors] BC-348R Question

I am thinking of tackling a restoration of my BC-348R and have a few questions.

It looks like brand new, unmolested as far as i can tell, with dynamotor still installed. It is the ?R? version so it was made by Belmont Radio. I bought it maybe 10-15 years ago and it?s sat on the shelf collecting dust.

I?ve seen some posts over the years where guys recommend recapping the coupling caps right out of the chute. While I?ve read that the Micamold caps are a must. I just pulled the chassis from the cabinet. Gads the insides look like brand new. I see several Micamold caps?

I?d like to restore the dynamotor as well and run it from that. I?ve seem a couple of nice DM-28 restoration videos on Youtube so that seems straight forward.

I?d appreciate hearing some advice. Thanks. 73, Scott WA9WFA

From a.b.bonds at Vanderbilt.Edu Mon Nov 27 14:35:05 2017
From: a.b.bonds at Vanderbilt.Edu (Bonds, A B)
Date: Mon, 27 Nov 2017 19:35:05 +0000
Subject: [BoatAnchors] While we're on capacitors....
Message-ID: <C8FFB7BC5D48064D8BF9AD0086503DF984565DB1@ITS-HCWNEM107.ds.vanderbilt.edu>

The SX-62 (first run) that I am currently flogging has three wax paper caps (0.05 at 200V, Ajax Capacitor Company) that have heavy braided leads. They are bypasses in the front end, so I am guessing that the braid is to minimize reactance in the path to ground, but what do I know?

Any other theories on why they used these? Any suggestions for replacements?

A. B. Bonds

From knjhanlon at msn.com Tue Nov 28 15:44:52 2017
From: knjhanlon at msn.com (JAMES HANLON)
Date: Tue, 28 Nov 2017 20:44:52 +0000
Subject: [BoatAnchors] While we're on capacitors....
In-Reply-To: <C8FFB7BC5D48064D8BF9AD0086503DF984565DB1@ITS-HCWNEM107.ds.vanderbilt.edu>
References: <C8FFB7BC5D48064D8BF9AD0086503DF984565DB1@ITS-HCWNEM107.ds.vanderbilt.edu>
Message-ID:
<MWHPR2001MB0925608BD42E4A22926C019EA03A0@MWHPR2001MB0925.namprd20.prod.outlook.com>

I have restored about 41 receivers for my collection, and I have 24 of them on the air at this point. In my experience, in only three of those receivers had the entire group of capacitors reached an "end-of-life" condition, either shorting out or being too leaky to use. Those receivers are an SX-43, vintage 1947 to 49,with other signs of unusually heavy corrosion, an SP-600JX with its infamous black beauties, vintage 1952 to 70, and a BC453 Q-5er Command Set, vintage 1942 to 45. Other receivers dating well back before WW2, an FB-7 and FBX (1933-4), an SW-3 (1933), an NC-200 (1940), RME-69 (1941), RME-70 (1938 - 40), SX-28 (1940 - 42), BC-454 and BC-455 Command Sets, and many newer sets from the 40s through the 60s have had at most a very few individual caps replaced on an as-needed basis. One caveat, for the last 28 years I have lived, with my receivers of course, in New Mexico where the ambient humidity is pretty low.

So my recommendation for your SX-62, A.B., would be to leave those caps alone unless they are actually showing specific signs of failure - high leakage measured electrically, physical deformation, heating up and dripping wax, etc. They are probably the best capacitors for their job in that SX-62 that you will ever be able to find.

Jim Hanlon, W8KGI

____
From: Bonds, A B <a.b.bonds at Vanderbilt.Edu>
Sent: Monday, November 27, 2017 12:35 PM
To: boatanchors at theporch.com
Subject: [BoatAnchors] While we're on capacitors....

The SX-62 (first run) that I am currently flogging has three wax paper caps (0.05 at 200V, Ajax Capacitor Company) that have heavy braided leads. They are bypasses in the front end, so I am guessing that the braid is to minimize reactance in the path to ground, but what do I know?

Any other theories on why they used these? Any suggestions for replacements?

A. B. Bonds

From spr at earthlink.net Tue Nov 28 01:20:25 2017
From: spr at earthlink.net (Scott Robinson)
Date: Mon, 27 Nov 2017 22:20:25 -0800
Subject: [BoatAnchors] While we're on capacitors....
In-Reply-To: <C8FFB7BC5D48064D8BF9AD0086503DF984565DB1@ITS-HCWNEM107.ds.vanderbilt.edu>
References: <C8FFB7BC5D48064D8BF9AD0086503DF984565DB1@ITS-HCWNEM107.ds.vanderbilt.edu>
Message-ID: <c5bab411-2140-0d54-2b9f-8ee561f49eed@earthlink.net>

Hi,

I think these were used t minimize series inductance. Since modern parts are smaller, you can probably get the same benefit by keeping the loop screen-to-ground-to cathode as small as possible.

Regards,

Scott

On 11/27/17 11:35 AM, Bonds, A B via BoatAnchors wrote:

> The SX-62 (first run) that I am currently flogging has three wax paper caps (0.05 at 200V, Ajax Capacitor Company) that have heavy braided leads. They are bypasses in the front end, so I am guessing that the braid is to minimize reactance in the path to ground, but what do I know?
>
> Any other theories on why they used these? Any suggestions for replacements?
>
> A. B. Bonds

From gsantacanav at gmail.com Tue Nov 28 16:30:47 2017
From: gsantacanav at gmail.com (Guido Santacana)
Date: Tue, 28 Nov 2017 17:30:47 -0400
Subject: [BoatAnchors] While we're on capacitors....
In-Reply-To:
<MWHPR2001MB0925608BD42E4A22926C019EA03A0@MWHPR2001MB0925.namprd20.prod.outlook.com>
References: <C8FFB7BC5D48064D8BF9AD0086503DF984565DB1@ITS-HCWNEM107.ds.vanderbilt.edu>

<MWHPR2001MB0925608BD42E4A22926C019EA03A0@MWHPR2001MB0925.namprd20.prod.outlook.com>
Message-ID: <7270260D-1A04-4136-BA2C-F613F2AFB7C3@gmail.com>

Living in a very high humidity environment I always go through the process of a complete recap regarding paper and electrolytic capacitors. In one case the recap included everynthing, paper, electrolytics and mica caps. The receiver was a Navy REP troop entertainment set that probably came from one of the old Navy bases here. The other complete recap was on the SP210SX, a wonderful set. The least recapped are the HQ180A, 180, and 100. I ended up adding a dehumidifier to the shack and it has been a lifesaver. My most difficult recap job? The SX28 RF section.

Best 73s

Guido

Guido Santacana KP4FAR

Sent from my iPhone

> On Nov 28, 2017, at 4:44 PM, JAMES HANLON via BoatAnchors <boatanchors at theporch.com> wrote:
>
> I have restored about 41 receivers for my collection, and I have 24 of them on the air at this point. In my experience, in only three of those receivers had the entire group of capacitors reached an "end-of-life" condition, either shorting out or being too leaky to use. Those receivers are an SX-43, vintage 1947 to 49,with other signs of unusually heavy corrosion, an SP-600JX with its infamous black beauties, vintage 1952 to 70, and a BC453 Q-5er Command Set, vintage 1942 to 45. Other receivers dating well back before WW2, an FB-7 and FBX (1933-4), an SW-3 (1933), an NC-200 (1940), RME-69 (1941), RME-70 (1938 - 40), SX-28 (1940 - 42), BC-454 and BC-455 Command Sets, and many newer sets from the 40s through the 60s have had at most a very few individual caps replaced on an as-needed basis. One caveat, for the last 28 years I have lived, with my receivers of course, in New Mexico where the ambient humidity is pretty low.
>
>
> So my recommendation for your SX-62, A.B., would be to leave those caps alone unless they are actually showing specific signs of failure - high leakage measured electrically, physical deformation, heating up and dripping wax, etc. They are probably the best capacitors for their job in that SX-62 that you will ever be able to find.
>
>
> Jim Hanlon, W8KGI
>
>
> ________________________________
> From: Bonds, A B <a.b.bonds at Vanderbilt.Edu>
> Sent: Monday, November 27, 2017 12:35 PM
> To: boatanchors at theporch.com
> Subject: [BoatAnchors] While we're on capacitors....
>
> The SX-62 (first run) that I am currently flogging has three wax paper caps (0.05 at 200V, Ajax Capacitor Company) that have heavy braided leads. They are bypasses in the front end, so I am guessing that the braid is to minimize reactance in the path to ground, but what do I know?
>
> Any other theories on why they used these? Any suggestions for replacements?
>
> A. B. Bonds
> ____
> BoatAnchors mailing list
> BoatAnchors at theporch.com
> https://imac.theporch.com/mailman/listinfo/boatanchors

From gumbear at pacbell.net Tue Nov 28 19:00:15 2017
From: gumbear at pacbell.net (Arden Allen)
Date: Tue, 28 Nov 2017 16:00:15 -0800
Subject: [BoatAnchors] While we're on capacitors....
In-Reply-To:
<MWHPR2001MB0925608BD42E4A22926C019EA03A0@MWHPR2001MB0925.namprd20.prod.outlook.com>
References: <C8FFB7BC5D48064D8BF9AD0086503DF984565DB1@ITS-HCWNEM107.ds.vanderbilt.edu>

<MWHPR2001MB0925608BD42E4A22926C019EA03A0@MWHPR2001MB0925.namprd20.prod.outlook.com>
Message-ID: <26D1A29600D74232BAD0BE6DB570B3CA@Lenovo>

> I have restored about 41 receivers for my collection ....

Hi Jim - I can't fault anyone much for re-capping an entire receiver. It is a better solution for those who's diagnostic skills are still under development. As a member of the California Historical Radio Society in Alameda, CA, I see all sorts of radios come in and the very first thing that happens to most of them is wholesale replacement of paper and electrolytic caps. The results are usually a radio that comes to life soon with very few problems still to overcome. The downside is some of the workmanship makes you want to hold your nose. Some folks go away happy with their singing radios and some of the radios go to the flea bazaar to keep the lights on.

Arden Allen
KB6NAX

He who is cruel to animals becomes
hard also in his dealings with men.
We can judge the heart of a man by
his treatment of animals.
?Immanuel Kant

From whitebear1122 at comcast.net Tue Nov 28 23:54:06 2017
From: whitebear1122 at comcast.net (Whitebear1122)
Date: Tue, 28 Nov 2017 22:54:06 -0600
Subject: [BoatAnchors] BC-348 Manual Comments and Stuff
References: <4E6A8546-1B20-4B99-B1E2-A98A5542FC80@comcast.net>
Message-ID: <E412A8C7-9111-4BEA-9D2F-8BF96C8C68BF@comcast.net>

I downloaded a BC-348H manual from the BC348 page on Jammingpower and printed it out. Tonight I was going through the manual to find out how many 0.01 and 0.5 mfd paper caps to order.

I am so impressed with this radio manual. I was expecting some worthless manual due to the urgency of World War II but instead I found a well written manual with clear photos of each resistor/capacitor board and assembly with clear references to EACH component, board diagrams, circuit descriptions, alignment, and schematics. Even the parts list was easy to use. With each turn of the page I would find myself thinking of the urgency of the people designing the radio, the component manufacturers, the radio manufacturers, in the time of desperation. This was a radio that had a very short anticipated lifetime.... in a B25 bomber heading off to war, either to return to fight again or get blown out the sky. It is an odd feeling.

I?ve never seen that technique before where each component is given a reference number that makes it so easy to locate in the parts list. Number like 32 or 32-1, 32-2, etc.. I would see a component with a reference of, for example, 11-1 or 11-2 and be able to quickly find it in the parts list where each part is identified separately, and not buried in a rows full of R1 through R100 numbers. Like the radio, the manual was also well thought out.

So the replacement capacitors are on order with our friends justradios.com for those pesky Micamold paper capacitors. I am reminded of a Micamold XTR-1 transmitter that I once owned. I opened it up and was surprised to see several of the Micamold capacitors with a big oil drop on the case. It was the dielectric leaking through the case. In spite of our modern day crabbing about the quality of the capacitors, I?m sure no one of that era had even a clue that these radios would be in use 70 years later. Hell I think the anticipated lifetime of a BC-348 was in months, not 70 years :)

Bill W2DGB suggested a mounting method to clip the caps and mount new ones to the tube sockets. I?ve been looking at the resistor boards and it looks like I can at a minimum clip one end of a hidden capacitor and then solder the new ones on the topside of the resistor boards where the solder terminals are easily accessible.

For you guys that recapped all the paper capacitors, did you use this technique or the W2DGB technique, or unsolder wires and remove the resistor boards completely and do a capacitor AND resistor change out?

73, Scott WA9WFA

From gsantacanav at gmail.com Wed Nov 29 09:47:51 2017
From: gsantacanav at gmail.com (Guido Santacana)
Date: Wed, 29 Nov 2017 10:47:51 -0400
Subject: [BoatAnchors] While we're on capacitors....
In-Reply-To: <5a1e919d.4369370a.7c2b3.fc43SMTPIN_ADDED_MISSING@mx.google.com>
References: <5a1e919d.4369370a.7c2b3.fc43SMTPIN_ADDED_MISSING@mx.google.com>
Message-ID: <1AC7B273-954A-4749-A76D-4B37D0BEDC6B@gmail.com>

You are quite right. One of my best examples is the TMC GPR 90. Before the dehumidifier it drifted in frequency for about 30 minutes. Not much but enough to be bothersome. Now the drifting is gone. Humidity here averages 80%.

73s

Guido

Guido Santacana KP4FAR

Sent from my iPhone

> On Nov 29, 2017, at 6:53 AM, WA1KBQ <WA1KBQ at aol.com> wrote:
>
> This might explain why receivers which have not been powered up in a long time seem to be down on performance at first but improve with use.
>
> Regards, Greg
> WA1KBQ
>
>
>
> Sent from my Verizon, Samsung Galaxy smartphone
>
> -------- Original message --------
> From: Guido Santacana via BoatAnchors <boatanchors at theporch.com>
> Date: 11/28/17 4:30 PM (GMT-05:00)
> To: JAMES HANLON <knjhanlon at msn.com>
> Cc: boatanchors <boatanchors at theporch.com>
> Subject: Re: [BoatAnchors] While we're on capacitors....
>
> Living in a very high humidity environment I always go through the process of a complete recap regarding paper and electrolytic capacitors. In one case the recap included everynthing, paper, electrolytics and mica caps. The receiver was a Navy REP troop entertainment set that probably came from one of the old Navy bases here. The other complete recap was on the SP210SX, a wonderful set. The least recapped are the HQ180A, 180, and 100. I ended up adding a dehumidifier to the shack and it has been a lifesaver. My most difficult recap job? The SX28 RF section.
>
> Best 73s
>
> Guido
>
> Guido Santacana KP4FAR
>
> Sent from my iPhone

>
>

From 1oldlens1 at ix.netcom.com Tue Nov 28 16:34:26 2017
From: 1oldlens1 at ix.netcom.com (Richard Knoppow)
Date: Tue, 28 Nov 2017 13:34:26 -0800
Subject: [BoatAnchors] While we're on capacitors....
In-Reply-To: <C8FFB7BC5D48064D8BF9AD0086503DF984565DB1@ITS-HCWNEM107.ds.vanderbilt.edu>
References: <C8FFB7BC5D48064D8BF9AD0086503DF984565DB1@ITS-HCWNEM107.ds.vanderbilt.edu>
Message-ID: <ff79ceed-182b-40a4-b1db-e937d5e4e6de@ix.netcom.com>

They are low inductance caps. Modern plastic dielectric caps probably have lower inductance. I don't think the braided lead caps were made for long and I have never seen any ads for them in the old catalogs. Other than the leads they are about like any other wax covered paper caps, i.e. should be replaced. If you have means for measuring ESR or dissipation factor and leakage you can check them but even if they are still good a modern plastic cap will be better. It seems to me that my S-20R and S-40A had one each of these caps. I don't remember exactly where but I think to short out the unused RF coils on the band switch. Hallicrafters seems to have liked them.

On 11/27/2017 11:35 AM, Bonds, A B via BoatAnchors wrote:
> The SX-62 (first run) that I am currently flogging has three wax paper caps (0.05 at 200V, Ajax Capacitor Company) that have heavy braided leads. They are bypasses in the front end, so I am guessing that the braid is to minimize reactance in the path to ground, but what do I know?
>
> Any other theories on why they used these? Any suggestions for replacements?
>
> A. B. Bonds

--
Richard Knoppow
1oldlens1 at ix.netcom.com
WB6KBL

From 1oldlens1 at ix.netcom.com Tue Nov 28 16:56:51 2017
From: 1oldlens1 at ix.netcom.com (Richard Knoppow)
Date: Tue, 28 Nov 2017 13:56:51 -0800
Subject: [BoatAnchors] While we're on capacitors....
In-Reply-To: <7270260D-1A04-4136-BA2C-F613F2AFB7C3@gmail.com>
References: <C8FFB7BC5D48064D8BF9AD0086503DF984565DB1@ITS-

HCWNEM107.ds.vanderbilt.edu>

<MWHPR2001MB0925608BD42E4A22926C019EA03A0@MWHPR2001MB0925.namprd20.prod.outlook.com>
<7270260D-1A04-4136-BA2C-F613F2AFB7C3@gmail.com>
Message-ID: <04544c41-c975-5225-3c9b-fff7eadfe7ff@ix.netcom.com>

Generally mica caps will be OK. The exception is some silvered mica caps that develop silver oxide whiskers causing instability and sometimes shorts. Dipped epoxy silver micas do not seem to be vulnerable to this. It is mainly paper caps that are vulnerable to moisture. It can cause a sort of electrolytic break down of the paper resulting in increased ESR and leakage. Electrolytic caps are not sensitive so much to moisture but have a set of vices all their own. In both paper and electrolytic caps the history and service conditions are important. Electrolytics do not like to be without a DC voltage on them since the voltage is necessary to keep the chemical electrode formed. Paper caps have a lifetime that is partly controlled by the ratio of the rated voltage to the voltage actually on them. The higher the applied DC voltage the shorter the life. Oil filled capacitors are much more resistant to moisture problems but are rare except for transmitting type capacitors. Modern plastic film capacitors are pretty much immune from these problems. Unless mica caps show some definite problem they need not be replaced.

The infamous Black Beauty caps seem to have been mostly used in the Hammarlund SP-600. There were two types of BBs sold, voltages up to 400V which were dry, and those above 400V which were impregnated with oil. I think it is mainly the oil filled ones that have problems with the cases cracking and disintegrating however that may not be so.

The BBs I have dissected all had distorted windings. I don't think this was done deliberately but is something that happened during manufacture. Sprage made another cap called the Telecap but which were really an updated BB. These, and in fact other Sprague paper caps do not seem to have had the problems the BB did. All of the major capacitor makers produced similar plastic cased paper caps around the same time. They have the usual paper cap limit but did not exhibit the rapid failure of the BBs. Now to add to the puzzle I have old Hewlett-Packard instruments, for instance early 400D and H meters which have lots of BBs in them but none show the cracking or early failures of the ones Hammarlund got.

BTW, avoid the early -hp- 400D/H meters (with dark gray panels), they have a poor design and were completely redesigned when the light gray panel instruments were made. There is a service note for these early meters which describes the extensive mods that must be done.

On 11/28/2017 1:30 PM, Guido Santacana via BoatAnchors wrote:
> Living in a very high humidity environment I always go through the process of a complete recap regarding paper and electrolytic capacitors. In one case the recap

included everynthing, paper, electrolytics and mica caps. The receiver was a Navy REP troop entertainment set that probably came from one of the old Navy bases here. The other complete recap was on the SP210SX, a wonderful set. The least recapped are the HQ180A, 180, and 100. I ended up adding a dehumidifier to the shack and it has been a lifesaver. My most difficult recap job? The SX28 RF section.
>
> Best 73s
>
> Guido

From wb3fau55 at neo.rr.com Tue Nov 28 19:01:20 2017
From: wb3fau55 at neo.rr.com (wb3fau55 at neo.rr.com)
Date: Tue, 28 Nov 2017 19:01:20 -0500
Subject: [BoatAnchors] forcing a capacitor
Message-ID: <20171129000120.JXOW1.67051.root@cdptpa-web02>

Gang, I have an SP-600 that has had an overload problem which I have not located. Today I found a 100pf postage stamp mica, in the IF section. I removed it and tested it. It tested OK, until I warmed it up with my heat gun. As my problem was come and go, I think I found the culprit. Heating causing it to go open and very leaky, and then repair it self as it cooled. I tried the same test with a replacement dipped silver mica, did not do this.
This was fun to find. For me a different failure. This was a Elmenco.
Russ.

From a.b.bonds at Vanderbilt.Edu Wed Nov 29 12:44:52 2017
From: a.b.bonds at Vanderbilt.Edu (Bonds, A B)
Date: Wed, 29 Nov 2017 17:44:52 +0000
Subject: [BoatAnchors] While we're on capacitors....
In-Reply-To: <26D1A29600D74232BAD0BE6DB570B3CA@Lenovo>
References: <C8FFB7BC5D48064D8BF9AD0086503DF984565DB1@ITS-HCWNEM107.ds.vanderbilt.edu>

<MWHPR2001MB0925608BD42E4A22926C019EA03A0@MWHPR2001MB0925.namprd20.prod.outlook.com>,
<26D1A29600D74232BAD0BE6DB570B3CA@Lenovo>
Message-ID: <C8FFB7BC5D48064D8BF9AD0086503DF9845678A3@ITS-HCWNEM107.ds.vanderbilt.edu>

I would really like to follow Jim's sage advice--The caps in question (with the braided leads) are in a REALLY bad place (anyone who has poked around the bandswitch of an SX-42/62 knows of which I speak). But I dug out one lead of the most accessible one and hooked the cap to my trusty Heath Cap Checker and not only was it unable to find a capacitance at all but on the leakage test the eye closed fully at 25 volts, indicating serious leakage. A modern cap meter showed a uF value about twice the rated value, but the reading wandered. And modern cap meters don't test for leakage.

So a couple of hours of fiddling to replace each of these is on the docket. What the heck, I'm in it for the entertainment (aren't we all?)

I have about 50 receivers up in my shack, mainly National, Hammarlund and Halli, with the usual DOD suspects as well as some Zenith TOs. All but 4 are done done done. In general I found that wholesale replacement was far from a waste of time--most of the caps replaced were wax or BBODs. While the wax caps can survive, unless they look pristine they are automatically suspect (and some of the pristine ones are bad anyway). As a matter of course I check each cap I remove and have rarely been disappointed by the effort. The only old RX that I have not had to do anything with is an E. H. Scott RCH, which works great with all of the original parts. (It is however a heavy dude, tied with the R-390 for mass). The newer Hammarlunds (140 and higher) also needed little or nothing. I have done two SX-28s. As Guido points out, the rf deck is beyond nasty (although close to a tie with the SP-600) and you may find that the micas are bad in it. Once done the SX28 is a total pleasure to use. And as suggested earlier, the Hammarlund SP210 is the hottest rx I have in terms of sensitivity. After compensating for impedance loading and all, it showed less than half a microvolt for 10 dB s+n/n at around 10 MHz. And the bandswitch is a wonder, has to be seen to be believed.

Ironically the BBODs in my McIntosh equipment (MC225 and MX110) did not show much leakage at all, though I have recently replaced them anyway when I changed out the voltage doubler electrolytics, which had lost their oomph. Maybe it was because of careful avoidance of environmental extremes (I have been using them regularly since purchase in (ahem) 1966. Dang I'm old.

A. B.

____
From: Arden Allen [gumbear at pacbell.net]
Sent: Tuesday, November 28, 2017 6:00 PM
To: JAMES HANLON; Bonds, A B; boatanchors
Subject: Re: [BoatAnchors] While we're on capacitors....

> I have restored about 41 receivers for my collection ....

Hi Jim - I can't fault anyone much for re-capping an entire receiver. It is a better solution for those who's diagnostic skills are still under development. As a member of the California Historical Radio Society in Alameda, CA, I see all sorts of radios come in and the very first thing that happens to most of them is wholesale replacement of paper and electrolytic caps. The results are usually a radio that comes to life soon with very few problems still to overcome. The downside is some of the workmanship makes you want to hold your nose. Some folks go away happy with their singing radios and some of the radios go to the flea bazaar to keep the lights on.

Arden Allen
KB6NAX

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his treatment of animals.
?Immanuel Kant

From k4oah at mindspring.com Wed Nov 29 21:52:54 2017
From: k4oah at mindspring.com (Garey Barrell)
Date: Wed, 29 Nov 2017 21:52:54 -0500
Subject: [BoatAnchors] FS: Drake Service Supplements
References: <82F61C90-90BD-43D0-A79A-E11DB2F8A97A@mindspring.com>
Message-ID: <5AE52D34-ADB6-44D9-9421-F09D2049A880@mindspring.com>

> Here is the information Drake left out!
>
> These Service Supplements include full color, high resolution photos of the chassis and all boards under the chassis. These photos can be blown up at least 600% on screen for a closer look. Individual parts are identified and keyed to a parts list.
>
> High resolution, first generation scans of original manuals are provided, along with manuals for other associated 4 Line equipment such as C-4, L-4B, AC-4, W-4, MN-4, MN-2000, FS-4, etc. All schematic versions are included, along with some showing previously undocumented changes. Each schematic can be enlarged on screen, and even printed up to four feet wide on a sheet printer at your local office such as FedEx. Also included are errata sheets, Ads, brochures and supplemental alignment procedures.
>
> All files are in PDF and may be read on most platforms using appropriate Reader applications free for download from various sites.
>
> Additional information may be found at <www.k4oah.com>. Currently files are only available via download. I hope to resume CD production in the future.
>
> --
> 73, Garey - K4OAH
> Rome, GA
>
> Drake 2-B, 2-C/2-NT, 4-A, 4-B, C-Line
> and TR-4/C Service Supplement CDs
> <www.k4oah.com>
>

>

From arc5 at ix.netcom.com Wed Nov 29 22:29:09 2017
From: arc5 at ix.netcom.com (David Stinson)
Date: Wed, 29 Nov 2017 21:29:09 -0600
Subject: [BoatAnchors] forcing a capacitor
In-Reply-To: <20171129000120.JXOW1.67051.root@cdptpa-web02>
References: <20171129000120.JXOW1.67051.root@cdptpa-web02>
Message-ID: <000701d3698b$673cba00$35b62e00$@netcom.com>

-----Original Message-----
From: Russ Dworakowski WB3FAU via BoatAnchors
Subject: [BoatAnchors] forcing a capacitor

Gang, I have an SP-600 that has had an overload problem which I have not located. Today I found a 100pf postage stamp mica, in the IF section. I removed it and tested it. It tested OK, until I warmed it up with my heat gun...

Excellent catch, Russ. Thanks for telling us about it.
73 Dave S.

From 1oldlens1 at ix.netcom.com Wed Nov 29 13:54:49 2017
From: 1oldlens1 at ix.netcom.com (Richard Knoppow)
Date: Wed, 29 Nov 2017 10:54:49 -0800
Subject: [BoatAnchors] While we're on capacitors....
In-Reply-To: <C8FFB7BC5D48064D8BF9AD0086503DF9845678A3@ITS-HCWNEM107.ds.vanderbilt.edu>
References: <C8FFB7BC5D48064D8BF9AD0086503DF984565DB1@ITS-HCWNEM107.ds.vanderbilt.edu>

<MWHPR2001MB0925608BD42E4A22926C019EA03A0@MWHPR2001MB0925.namprd20.prod.outlook.com>
 <26D1A29600D74232BAD0BE6DB570B3CA@Lenovo>
 <C8FFB7BC5D48064D8BF9AD0086503DF9845678A3@ITS-HCWNEM107.ds.vanderbilt.edu>
Message-ID: <6df7ab66-c472-7c03-96e1-539d7f35c4c6@ix.netcom.com>

I have also seen BBs in some equipment that were OK or at least no worse than other paper caps, the Hewlett-Packard meters I mentioned before for instance. I am not sure if these were a different series than the ones in the SP-600-JX that crumble or if it has something to do with the method of soldering them in. The BB was made in both an oil impregnated type and a dry type. I think it is mostly the oil impregnated type that cracks apart. They can be told by the short, thick, section of tubing on one side that forms part of the lead. The lead was stuck into the filler tube to seal it and either soldered or welded. I think too much heat when soldering them in can cause the seal to fail. These caps have the striped coding. Sprague made a version of the BB later called the Telecap which has a black body but not code stripes (which indicate value and voltage), just a stripe at one end showing the outside electrode.

After its experience with the SP-600-JX Hammerlund went to all ceramic caps. The reason the later receivers don't need caps is that most of them have ceramic caps where paper was used in the earlier receivers. While ceramics can go bad its rare.

AFAIK and from dissecting some bad ones, the low inductance caps with braided leads, are otherwise plain paper caps in wax. These were known when new to have a life limit and some older design texts give some rules of thumb for expected lifetime. The most common explanation for this is a break down of the paper caused by moisture (one correspondent says its oxygen). So, the better sealed the cap winding is from external moisture the better. Very old caps were soaked in liquid wax, then Bakelite and other plastics were used in molded cases. These were supposed to be more resistant to ingress of moisture than wax but history seems to show they were not much better. Some capacitors intended for long life or difficult service were sealed in metal containers filled with mineral oil. This does seem to have extended life, sometimes quite a bit. Caps like the BB were intended to gain the benefits of oil types without the metal cases. The idea does not seem to have worked well.

I think the series of BB caps that earned them such an awful reputation were actually defective in manufacture rather than the failure being a result of the design. The BBs I have dissected all show distorted windings. I don't know how this happened but Sprague says that the BB cap was heat processed so that is one possibility, another is the pressure from the oil. I do not know how the impregnation was done other than through the filler tube at one end. Perhaps there is a patent buried somewhere that describes the process.

In any case, all paper caps, including the bathtub oil filled ones, should be checked. Those in waxed cases are almost certainly bad and probably most of the plastic ones are also.

Modern plastic film caps are superior to the paper caps when new and while they may not look right they will perform better.

Leakage is of very great importance and, as you say, most modern cap checkers do not test for it. It can be checked either with older checkers that have the leakage test or with an ohm meter capable of reading very high resistance. Meters used for measuring leakage in motors and transformers will also work provided the test voltage is within the capacitor rating. I found the ohm meter function on my ancient Hewlett-Packard 410B does pretty well although the voltage is very low. In some cases the leakage is not in the form of a linear resistor so won't show up until the test voltage is high enough.

Note again that electrolytic capacitors have some leakage normally. This is taken into account in the old capacitor checkers, but if you use something like an ohm meter it may give misleading readings.

On 11/29/2017 9:44 AM, Bonds, A B via BoatAnchors wrote:

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Richard Knoppow
1oldlens1 at ix.netcom.com
WB6KBL